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Scorpiops songi sp.n. and key to species of *Scorpiops* from China (Scorpiones: Scorpiopidae)

Scorpiops songi sp.n. и ключ для определения *Scorpiops* Китая (Scorpiones: Scorpiopidae)

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KEY WORDS: China, key, scorpion, *Scorpiops*, Xizang.

КЛЮЧЕВЫЕ СЛОВА: Китай, ключ для определения, скорпион, *Scorpiops*, Тибетский автономный округ.

ABSTRACT: A new species, *Scorpiops songi* sp.n., from Xizang (China), is described and illustrated. It is characterized by light yellow-brown color in living individuals, large size (length of adult male about 72.0 mm), small and dense granules on integument, a pair of small median eyes (diameter< 0.5 mm), 17 trichobothria (5 *eb*, 2 *esb*, 2 *em*, 4 *est*, 4 *et*) on the external surface of pedipalp patella and 7 or 8 trichobothria on the ventral surface of pedipalp patella, chela with a length/width ratio about 2.4 in one adult male and average of 2.8 in two immature females, pedipalp chela fingers on adult females and males scalloped, pectinal teeth count 7 in five males and 6 in three females, pectinal fulcra vestigial. The number of known species of *Scorpiops* from China is raised to 16, is more than half of the known species (29) in the world.

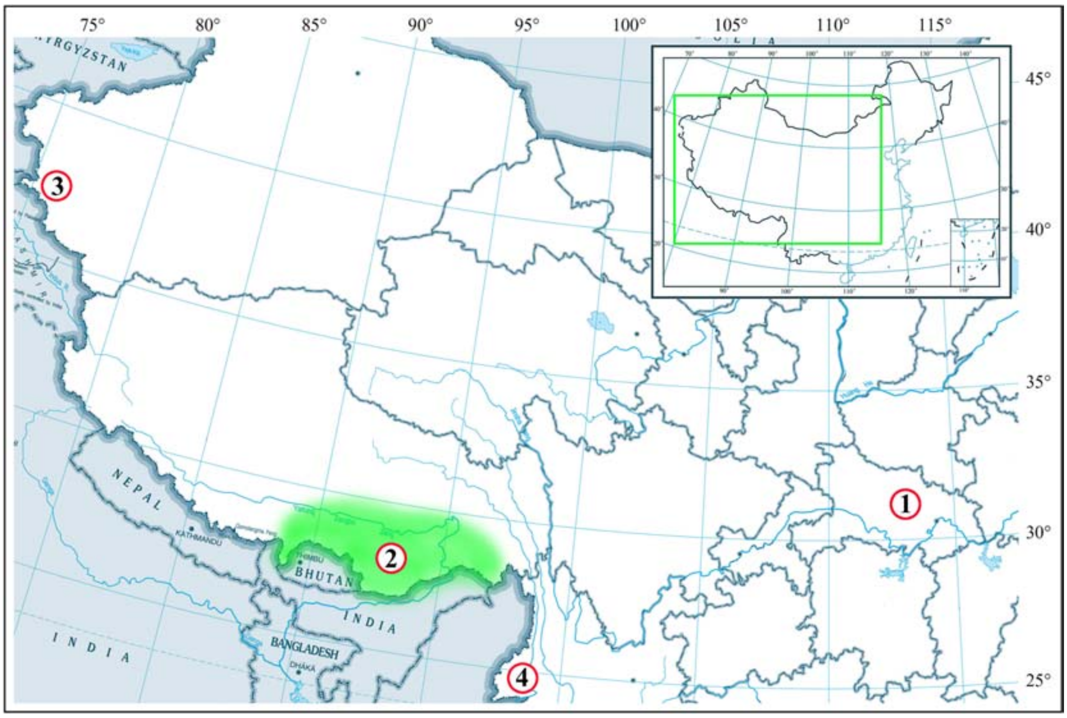
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РЕЗЮМЕ: Дано иллюстрированное описание нового вида скорпионов *Scorpiops songi* sp.n. из Тибетского автономного округа, Китай. Новый вид характеризуется светлой желто-коричневой прижизненной окраской, большими размерами тела (длина взрослого самца около 72,0 мм), мелкой и густой зернистостью кутикулы, парой мелких срединных глаз (диаметр менее 0,5 мм), 17 трихоботриями (5 *eb*, 2 *esb*, 2 *em*, 4 *est*, 4 *et*) на наружной поверхности пателлы педипальпы и 7 или 8 трихоботриями на ее вентральной поверхности, клешней педипальпы с соотношением длины/ширины около 2,4 у половозрелого самца и в среднем 2,8 у двух неполовозрелых самок, волнистым лезвием пальцев клешни педипальпы у половозрелых самок и самцов, 7 зубцами гребневидного органа у пяти самцов и 6 — у трех самок, фулькры слаборазвиты. Число известных видов рода в Китае возросло до 16, т.е. более половины видов мировой фауны, составляющей 29 видов.

Introduction

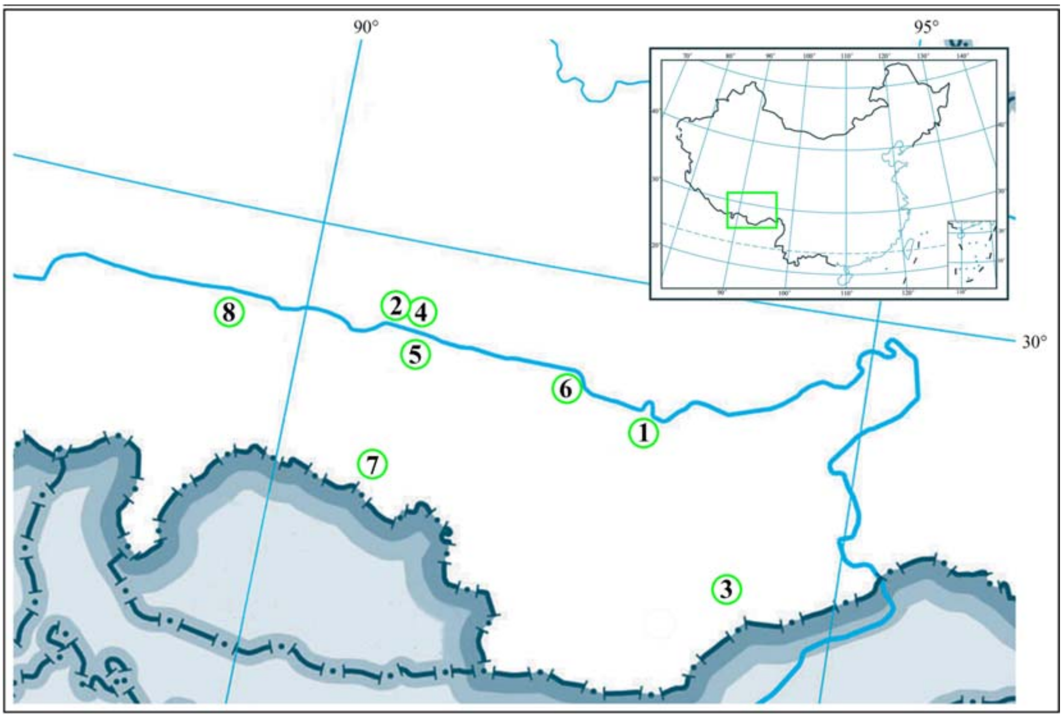
Scorpiops Peters, 1861 is the second large genus of the family Scorpiopidae Laurie, 1896, distributed mainly in South and Southeast Asia [Kovařík, 2000]. Near half of the known species of this genus found in China, mainly in Xizang.

Di *et al*. [2013–2015] recorded 11 *Scorpiops* species from China followed the literature [Bastawade, 2006; Di *et al*., 2011a, b; Qi *et al*., 2005; Zhu *et al*., 2004]: *S. atomatus* (Xizang), *S. hardwickii* (Xizang), *S. jendeki* (Yunnan), *S. langxian* (Xizang), *S. leptochirus* (Xizang), *S. lhasa* (Xizang), *S. luridus* (Xizang), *S. margerisonae* (Xizang), *S. petersii* (Xizang), *S. pococki* (Xizang), and *S. tibetanus* (Xizang). Yin *et al*. [2015] described a new species: *S. ingens* (Xizang), and provided a key for these species. Li *et al*. [2016] erected another new species: *S. jingshanensis* from Jingshan County (Hubei Province) followed the description by Di *et al*. [2011a]. Lourenço [2018] described *S. taxkorgan*, based on the specimens collected at altitudes of 4500–4600 m, from the Taxkorgan Natural Reserve, Xinjiang (China). Kovařík [2020] described a new species, *Scorpiops wrzecionkoi* (Xizang). *S. jingshanensis* is the first record of the family Euscorpiidae from the central China. *S. taxkorgan* is the first record of this family from Xinjiang, also the highest and northernmost distribution record of this family. Here, we describe a new species from southern Xizang, as the genus *Scorpiops* becomes the largest genus of Chinese scorpion fauna. In China, including this new species, its 13 members were found in Xizang, other one from Hubei, one from Xinjiang and one from Yunnan (Maps 1, 2).



Map 1. Map of Central and Western China, showing the localities of *Scorpiops* species. 1 — *S. jingshanensis* from Hubei (Huzhao Mountains); 2 — the green part, presumed distribution area of *Scorpiops* species in Xizang; 3 — *S. taxkorgan* from Xinjiang (Taxkorgan Natural Reserve); 4 —*S. jendeki* from Yunnan (Gaoligong Mountains).

Карта 1. Местонахождения видов *Scorpiops* в Центральном и Западном Китае. 1 — *S. jingshanensis* (Хубей, горы Huzhao); 2 — закрашена область распространения *Scorpiops* в Тибетском автономном округе; 3 — *S. taxkorgan* (Синьцзян, Ташкурганский заповедник); 4 — *S. jendeki* (Юннань, горы Гаолигун).



Map 2. Map of Xizang (China), showing the localities of *Scorpiops* species. 1 — type locality of *S. atomatus*, *S. langxian* and *S. luroris*; 2 — type locality of *S. ingens*; 3 — *S. leptochirus*; 4 — type locality of *S. lhasa*; 5 — *S. margerisonae*, and type locality of *S. wrzecionkoi*; 6 — type locality of *Scorpiops pococki*; 7 — type locality of *S. songi* sp.n.; 8 — *S. tibetanus*.

Карта 2. Местонахождения видов *Scorpiops* в Тибетском автономном округе. 1 — типовые местонахождения *S. atomatus*, *S. langxian* и *S. luroris*; 2 — типовое местонахождение *S. ingens*; 3 — *S. leptochirus*; 4 — типовое местонахождение *S. lhasa*; 5 — *S. margerisonae*, и типовое местонахождение *S. wrzecionkoi*; 6 — типовое местонахождение *Scorpiops pococki*; 7 — типовое местонахождение *S. songi* sp.n.; 8 — *S. tibetanus*.



Figs 1–4. Habitus of *Scorpiops songi* sp.n. Dorsal and ventral habitus: 1, 2 — male holotype (Ar.-MHBU-XZLZ1501); 3, 4 — female paratype (Ar.-MHBU-XZLZ1502). Scale bar = 10.0 mm.

Рис. 1–4. Внешний вид *Scorpiops songi* sp.n., дорсально и вентрально: 1, 2 — голотип самец (Ar.-MHBU-XZLZ1501); 3, 4 — паратип самка (Ar.-MHBU-XZLZ1502). Масштаб 10,0 мм.

Material and methods

Identification and measurements were made using a Motic K700 stereomicroscope with an ocular micrometer. The photos were taken with a Canon 650D camera and a Leica M205FA stereomicroscope (with a digital color microscope camera Leica DFC495). Measurements followed Sissom [1990)] and are given in mm. Trichobothrial notations followed Vachon [1974], and the morphological terminology mostly followed Hjelle [1990]. The terminology of metasomal carination followed Vachon [1952], and the terminology of pedipalp chelal carinae followed Soleglad & Sissom [2001]. Type series of the new species are deposited in the Museum of Hebei University, Baoding, China (MHBU).

Taxonomy

Family Scorpiopidae Kraepelin, 1905
Genus *Scorpiops* Peters, 1861

Scorpiops songi **sp.n.**
Figs 1–33, Table 1.

TYPE MATERIAL: Holotype male (MHBU), China: Xizang, Lhozhag County (Luozha County), 6/VIII/2015, Zhiyong Di leg. (Ar.-MHBU-XZLZ1501); paratypes: 1 immature and 3 juvenile males, 3 immature females, same location data as holotype (Ar.-MHBU-XZLZ1502–08).

DIAGNOSIS. In accordance with the grouping of species proposed for the genus *Scorpiops* [Kovařík, 2000; Kovařík, Ahmed, 2009; Kovařík, 2020], the new species differs from other members of the group in having light yellow-brown color, large size (length of adult male about 72.0 mm), small and dense granules on the integument, 17 trichobothria (5 *eb*, 2 *esb*, 2 *em*, 4 *est*, 4 *et*) on the external surface of pedipalp patella and 7 or 8 trichobothria on the ventral surface of pedipalp patella, chelae with a length/width ratio about 2.4 in one adult male and an average of 2.8 in two immature females, pedipalp chela fingers on adult females and males scalloped, pectinal teeth count 7 in males and 6 in females, pectinal fulcra vestigial.

ETYMOLOGY. Patronym in honor of Prof. Daxiang Song (Hebei University), who greatly contributed to arachnid science in China.

DESCRIPTION. Based on male holotype.

Coloration. Mostly light yellow-brown after soaked in 75% alcohol more than one year (Figs 1–2). Carapace light yellow-brown with unconspicuous dark stripe (Figs 5, 6), median and lateral ocular tubercles black. Tergites and metasoma segments light yellow-brown (Figs 1–2, 11). Vesicle light yellow with a yellow-brown aculeus (Fig. 15). Chelicerae yellow, with fingers black-brown and gradually lighter toward the tip. Pedipalp light yellow-brown, with the carinae black-brown (Figs 1–2). Legs light yellow-brown. Claws yellow with yellow-brown tips. Sternum and sternites light yellow-brown (Figs 4, 13). Genital operculum, basil piece and pectines light yellow-brown (Fig. 13).

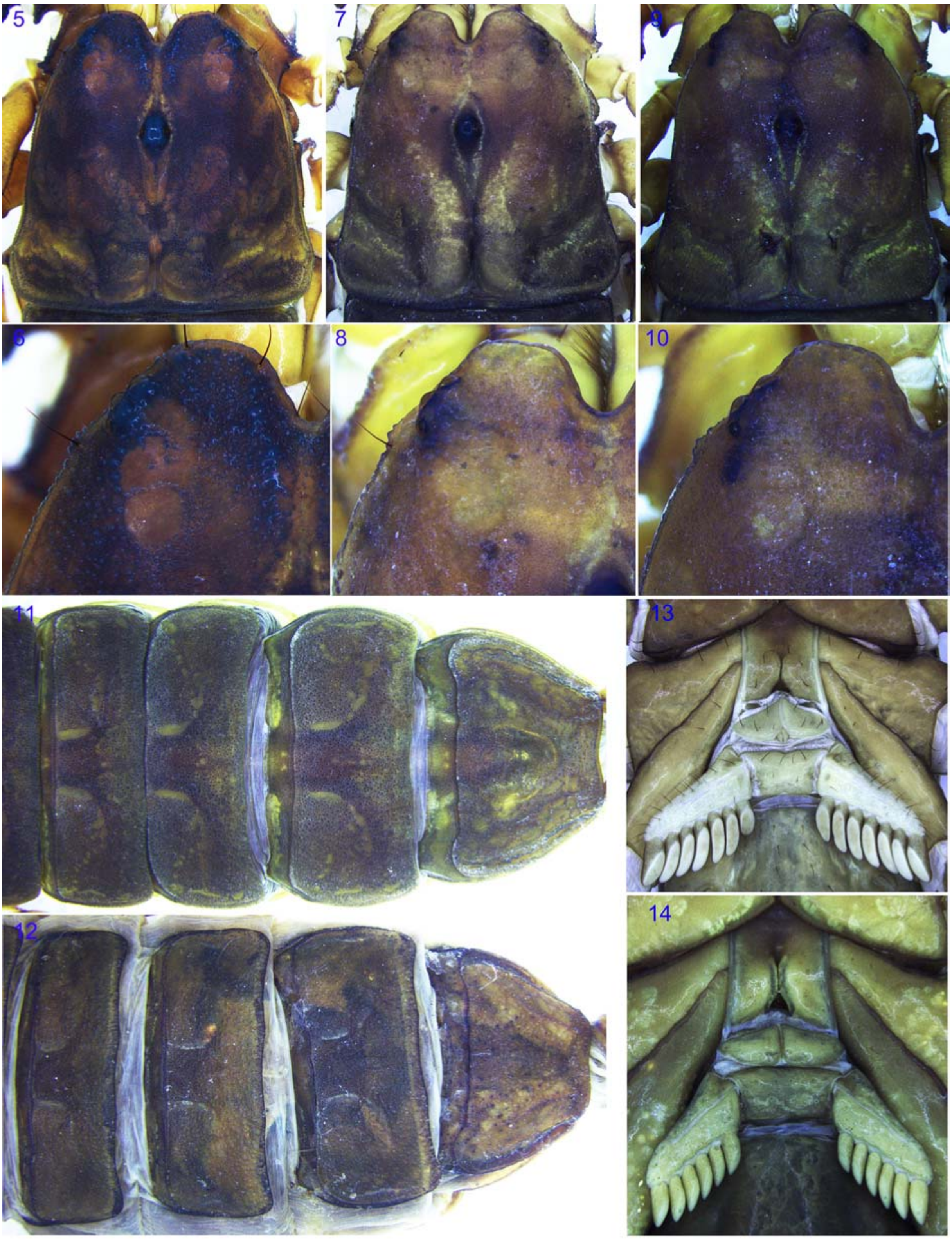
Morphology. Prosoma: Carapace coarse, with dense and minute granules, with sparse and large granules in the area of the front of the eye and nearby area; lateral furrow broad and flat; anterior median furrow broad and shallow; posterior median furrow deep; anterior margin nearly smooth; posterior and lateral margins and other parts with dense, minute granules (Figs 5, 6). Median eyes small and same as the first lateral eyes, situated anterior to the center of the carapace; three pairs of lateral eyes, the third smallest (Figs 5, 6). Median ocular tubercle high and smooth, with a shallow median furrow. Lateral ocular tubercle with some bigger smooth granules.

Mesosoma: Tergites completely densely covered with equal minute granules in male holotype, but posterior part with some bigger granules in immature female and immature male paratypes; from tergite II to VI the trace of a median carina first appears and gradually becomes distinct; on tergite VII with a distinct apophysis and two pairs of lateral carinae. Sternum pentagonal with few setae (Fig. 13). Pectinal teeth count 7 in males, fulcra vestigial (Fig. 13). Genital opercula subtriangular with few setae (Fig. 13). Sternites III–VI smooth and shiny with few setae (Fig. 2); segment VII ventrally with four weak carinae and few setae.

Metasoma: Tegument coarse with few setae. Segments I to V are longer than wide; segments I to V have 10-8-8-8-7 carinae, segments II–IV with a pair of vestigial lateral carinae; all carinae granular; on segment V, ventral carinae with larger serration. Vesicle with dense granules and few setae (Fig. 15).

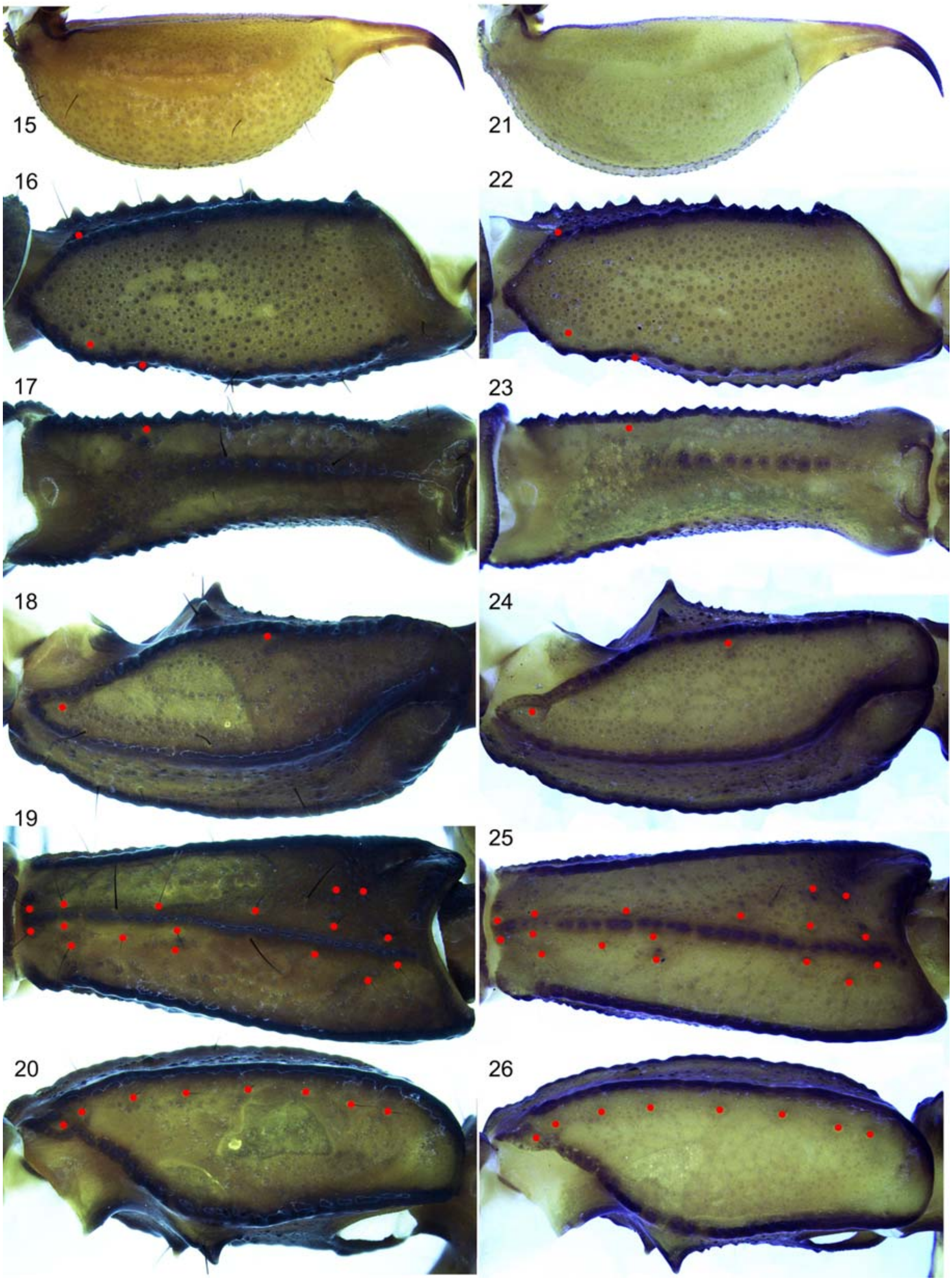
Chelicerae: Tibiae smooth with many long hairs on ventral aspect. Movable finger with 4 denticles on dorsal edge and 6 denticles on ventral edge. Fixed finger with 3 denticles on dorsal edge.

Pedipalps: Tegument smooth with smooth granules and few setae. Femur with dorsointernal, dorsoexternal, exter-



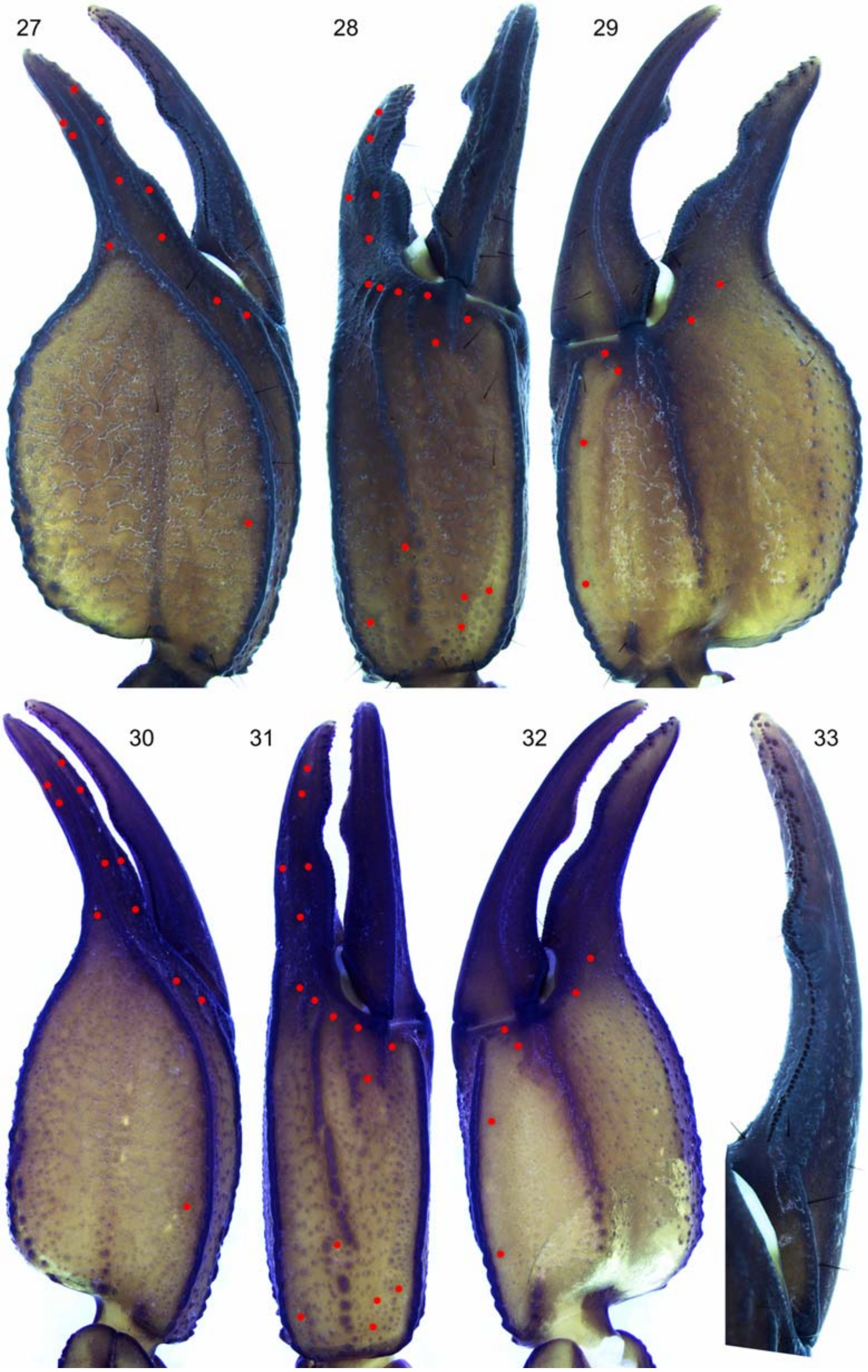
Figs 5–14. *Scorpiops songi* sp.n. Male holotype (5, 6, 11, 13); female paratype (Ar.-MHBU-XZLZ1502; 7, 8, 12, 14); female paratype (Ar.-MHBU-XZLZ1503; 9, 10): 5, 7, 9 — carapace; 6, 8, 10 — lateral eyes and nearby area; 11, 12 — tergites IV–VII; 13, 14 — ventral aspect of prosoma.

Рис. 5–14. *Scorpiops songi* sp.n. Голотип самец (5, 6, 11, 13); паратип самка (Ar.-MHBU-XZLZ1502; 7, 8, 12, 14); паратип самка (Ar.-MHBU-XZLZ1503; 9, 10): 5, 7, 9 — карапакс; 6, 8, 10 — боковые глаза и близлежащая область; 11, 12 — тергиты IV–VII; 13, 14 — просома, вентрально.



Figs 15–26. *Scorpiops songi* sp.n. Male holotype (15–20), female paratype (Ar.-MHBU-XZLZ1502; 21–26): 15, 21 — telson, lateral aspect; 16, 17, 22, 23 — femur (right) dorsal and external aspects; 18–20, 24–26 — patella (right) dorsal, external, and ventral aspects. Dots denote trichobothrial patterns of pedipalps.

Рис. 15–26. *Scorpiops songi* sp.n. Голотип самец (15–20), паратип самка (Ar.-MHBU-XZLZ1502; 21–26): 15, 21 — тельсон, латерально; 16, 17, 22, 23 — правое бедро, дорсально и снаружи; 18–20, 24–26 — правая пателла, дорсально, снаружи и вентрально. Точки указывают трихоботрии педипальп.



Figs 27–33. *Scorpiops songi* sp.n. Male holotype (27–29, 33), female paratype (Ar.-MHBU-XZLZ1502; 30–32): 27–32 — chela (right) dorsal, external, and ventral aspects; 33 — dentate margin of movable finger, showing rows of granules. Dots denote trichobothrial patterns of pedipalps.

Рис. 27–33. *Scorpiops songi* sp.n. Голотип самец (27–29, 33), паратип самка (Ar.-MHBU-XZLZ1502; 30–32): 27–32 — правая клешня, дорсально, снаружи и вентрально; 33 — зубчатый край подвижного пальца, показан ряд зубчиков. Точки указывают трихоботрии педипальп.

Table 1. Measurements (in mm) of holotype (male, Ar.-MHBU-XZLZ1501) and paratype (immature female, Ar.-MHBU-XZLZ1502) of *Scorpiops songi* sp.n.
Таблица 1. Промеры (в мм) голотипа (самец, Ar.-MHBU-XZLZ1501) и паратипа (неполовозрелая самка, Ar.- MHBU-XZLZ1502) *Scorpiops songi* sp.n.

***Scorpiops songi* sp.n.**		
	Holotype	**Paratype** (immature)
Total length:	72.0	61.0
Carapace:		
– Length	9.7	9.4
– Anterior width	5.2	4.9
– Posterior width	9.6	8.5
Mesosomal segments:		
– Length	21.7	20.5
Metasomal segment I:		
– Length	4.2	4.0
– Width	4.0	3.6
– Depth	3.0	3.0
Metasomal segment II:		
– Length	5.2	4.4
– Width	3.7	3.0
– Depth	2.9	2.8
Metasomal segment III :		
– Length	5.7	4.8
– Width	3.3	2.6
– Depth	3.0	2.6
Metasomal segment IV:		
– Length	6.7	5.4
– Width	3.2	2.4
– Depth	2.9	2.6
Metasomal segment V:		
– Length	9.8	8.0
– Width	3.0	2.1
– Depth	2.9	2.3
Telson:		
– Length	11.3	8.9
– Width	3.9	3.2
– Depth	3.7	3.1
Pedipalp femur:		
– Length	9.0	9.3
– Width	3.8	3.3
– Depth	2.7	3.0
Pedipalp patella:		
– Length	7.9	7.6
– Width	4.0	3.9
– Depth	3.5	3.2
Chela:		
– Length	17.2	15.3
– Width (manus)	7.2	5.6
– Depth (manus)	4.7	4.0
Movable finger:		
– Length	10.1	9.5
Pectinal teeth	7/7	6/6

nal, ventroexternal, ventrointernal carinae granulated, and internal carinae crenulated (Figs 16, 17). Patella with dorsoexternal, dorsointernal, external, ventrointernal, ventroexternal carinae with large, smooth granules; two big spinoid granules present on the internal aspect (Figs 18–20). Trichobothrial pattern C, neobothriotaxic; patella with 17 external trichobothria (5 *eb*, 2 *esb*, 2 *em*, 4 *est*, 4 *et*) and 7 or 8 ventral trichobothria (Figs 18–20). Chela with 4 ventral trichoboth-

ria, all carinae granulated and coalesced except dorsointernal carina just with some sparse big granules (Figs 27–29). Male pedipalp chela fingers stronger curved than females (Fig. 33).

Legs: Tegument coarse with few setae, except ventral aspects of coxae, trochanters, femurs and patellae smooth. Trochanter dorsal surface with few granules. Femur dorsal surface densely granular, internally with one granular carina. Patella dorsal surface densely granular, with dorsoexternal, dorsal and ventroexternal granular carinae. Tibiae without spurs. Basitarsus with more setae, and two lateral pedal spurs. Tarsus ventrally with row of spinules. Ungues falcate.

VARIATION. Female and male paratypes: coloration more dark in metasoma, sternites and tergites (Figs 3, 4), while their morphologies are similar, except the distinct in chela and pectinal teeth (Figs 3, 4, 7–10, 12, 14, 21–26, 30–32). Number (left/right) of trichobothria on the ventral surface of the pedipalp patellae: females with 8/8 (2 individuals) and 8/7 (1), males with 8/8 (2) and 7/7 (3). Number of pectinal teeth: three females with 6/6, five males with 7/7. Measurements in Table 1.

HABITAT. Under stones on hillsides with ruderal vegetation in Lhozhag County, about 3650 m elevation.

DISTRIBUTION. Lhozhag County [28°11′N, 91°15′E; 28°19′N, 90°57′E], Xizang, China.

COMMENTS. The new species appears to be related to the other light-colored species of the genus *Scorpiops* from Xizang: *S. luridus*. The latter is also the geographically closest species, but they can be readily distinguished on the basis of the following combination of characters: (i) 7 or 8 trichobothria on the ventral surface of the pedipalp patella in *S. songi* sp.n., while there are 9 in *S. luridus*; (ii) pectinal teeth count 7 in males and 6 in females in.*S. songi* sp.n., pectinal teeth count 9/10 in male holotype and 8 in female paratype in *S. luridus*.

KEY TO SPECIES OF *SCORPIOPS* FROM CHINA (MAPS 1&2, MODIFIED FROM YIN *ET AL*., 2015)

1. Pedipalp chela fingers with non-scalloped (nearly straight) margins in both sexes 2
– Pedipalp chela fingers with scalloped margins in male adults 5
2. Chela length to width ratio more than 3.0. 3
– Chela length to width ratio less than 3.0 4
3. Total length 40.0–58.0 mm, chela length to width ratio about 3.3–3.5 ....*S. leptochirus*
– Total length 35.2 mm (male holotype), chela length to width ratio about 3.2 .... *S. taxkorgan*
4. Ventral trichobothria on patella number 6 (7 rarely), pectinal teeth number 4–5 .... *S. jendeki*
– Ventral trichobothria on patella number 8, pectinal teeth number 6–8 ....*S. jingshanensis*
5. Manus length to width ratio visibly more than 1 6
– Manus with similar length and width 13
6. Total length more than 61.0 mm usually 7
– Total length less than 61.0 mm usually 9
7. Red brown, ventral patella of pedipalps with 7 (rarely 6 or 8) trichobothria ....*S. petersii*
– Lighter than red brown 8
8. Ventral patella of pedipalps with 7 or 8 trichobothria, pectinal teeth count 7 in males and 6 in females .... *S. songi* sp.n.
– Ventral patella of pedipalps with 9 trichobothria, pectinal teeth count 9/10 in male holotye and 8 in female paratype .... *S. luridus*
9. Dorsally flat manus of pedipalps and chela of both sexes, with length/width ratio: 2.1–2.2 (about 2.1 in males and 2.2 in females), total length 40.0–50.0 mm in adults .... *S. margerisonae*
– Dorsally round manus of pedipalps or at least the chela of one sex, with length to width ratio more than 2.2 or total length more than 50.0 mm 10
10. Body length more than 45.0 mm 11
–Body length less than 40.0 mm 12
11. Patella of pedipalp with 17 (5 *eb*, 2 *esb*, 2 *em*, 4 *est*, 4 *et*) external trichobothria .... *S. tibetanus*
– Patella of pedipalp with 18–20 (5 *eb*, 2 *esb*, 2 *em*, 5 *est*, 4–6 *et*) external trichobothria .... *S. wrzecionkoi*
12. Chela of pedipalp length to width ratio about 2.6–3.0 .. .. *S. lhasa*
– Chela of pedipalp length to width ratio less than 2.5 .... *S. atomatus*
13. Yellow brown color, length of adults more than 70.0 mm .... *S. ingens*
– Red brown to red black color, length of adults less than 65.0 mm .... *S. hardwickii* “complex”

Discussion

Di *et al*. [2011a] according to the revision of the genus *Scorpiops* published by Kovařík [2000], and further considerations given by Kovařík & Ahmed [2009], summarized the features of *S. hardwickii* (Gervais, 1843) “complex” (three species from China: *S. hardwickii*, *S. langxian* and *S. pococki*): 6–8 ventral trichobothria and 17 external trichobothria on the patella; pectinal teeth number count 4–9; pectines without fulcra; chela manus length to width ratio about 1; tegument coarse. *S. hardwickii* “complex” can be distinguished from *S. jendeki* by the following features: (1) carapace with dense granules in *S. hardwickii* “complex”, while in *S. jendeki* bearing very sparse large granules; (2) the manus of pedipalps dorsally with coalescing large granules forming clear dorsoexternal carinae in *S. hardwickii* “complex”; in *S. jendeki*, irregular rows of granules form a loose dorsoexternal carinae; (3) chela fingers scalloped in *S. hardwickii* “complex”, while they are non-scalloped (nearly straight) in *S. jendeki*. *S. hardwickii* “complex” can’t be distinguished from *S. jingshanensis* except the body length of the latter is very short (the authors did not provide its body length as they thought it were immature) and its pedipalp chela fingers with non-scalloped (nearly straight) margins in both sexes.

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References

Bastawade D.B. 2006. Arachnida: Scorpionida, Uropygi, Schizomida and Oncopodid Opiliones (Chelicerata) // Fauna of Arunachal Pradesh. State Fauna Series. Vol.13. Part 2. Zool. Survey, India. P.449–465.

Di Z.Y., He Y.W., Cao Z.J., Wu Y.L., Li W.X. 2011a. The first record of the family Euscorpiidae (Arachnida: Scorpiones) from Central China, with a key of Chinese species of the genus *Scorpiops* // Euscorpius. No.118. P.1–9.

Di Z.Y., He Y.W., Wu Y.L., Cao Z.J., Liu H., Jiang D.H., Li W.X. 2011b. The scorpions of Yunnan (China): updated identification key, new record and redescriptions of *Euscorpiops kubani* and *E. shidian* (Arachnida, Scorpiones) // ZooKeys. Vol.82. P.1–33.

Di Z.Y., Xu X.B., Cao Z.J., Wu Y.L., Li W.X. 2013. Notes on the scorpions (Arachnida, Scorpiones) from Tibet with the redescription of *Scorpiops jendeki* Kovařík, 2000 (Scorpiones, Euscorpiidae) from Yunnan (China) // ZooKeys. Vol.301. P.51–99.

Di Z.Y., Yang Z.Z., Cao Z.J., Wu Y.L., Li W.X. 2015. The Scorpiones Fauna of China (Chelicerata: Arachnida) // Acta Arachnologica Sinica. Vol.24. P.109–115.

Di Z.Y., Yang Z.Z., Yin S.J., Cao Z.J., Li W.X. 2014. History of study, updated checklist, distribution and key of scorpions (Arachnida: Scorpiones) from China // Zoological Research. Vol.35. P.3-19.

Hjelle J.T. 1990. Anatomy and morphology // Polis G.A. (ed.). The Biology of Scorpions. Stanford: Stanford Univ. Press. P.9–63.

Kovařík F. 2000. Revision of family Scorpiopidae (Scorpiones), with descriptions of six new species // Acta Societatis Zoologicae Bohemicae.Vol.64. P.153–201.

Kovařík F. 2020. Nine new species of *Scorpiops* Peters, 1861 (Scorpiones: Scorpiopidae) from China, India, Nepal, and Pakistan // Euscorpius. No.302. P.1–43.

Kovařík F., Ahmed Z. 2009. Three new species of the genus *Scorpiops* Peters, 1861 (Scorpiones: Euscorpiidae: Scorpiopinae) from Pakistan // Euscorpius. No.88. P.1–11.

Li W.X., Wu Y.L., Cao Z.J., Di Z.Y. 2016. The taxonomy of the order Scorpiones in China // Li W.X., Wu Y.L., Cao Z.J., Di Z.Y. (eds.). Scorpion biology and toxins. Beijing: Science Press. P.230–231.

Lourenço W.R. 2018. Scorpions at high altitudes: A new species of *Scorpiops* Peters, 1861 (Scorpiones: Scorpiopidae) from the Taxkorgan Reserve, Xinjiang, China // Comptes Rendus Biologies.Vol.341. P.362–369.

Qi J.X., Zhu M.S., Lourenço W.R. 2005. Eight new species of the genera *Scorpiops* Peters, *Euscorpiops* Vachon, and *Chaerilus* Simon (Scorpiones: Euscorpiidae, Chaerilidae) from Tibet and Yunnan, China // Euscorpius. No.32. P.1–40.

Sissom W.D., Polis G.A., Wait D.D. 1990. Field and laboratory methods // Polis G.A. (ed.). The Biology of Scorpions. Stanford: Stanford Univ. Press. P.445–461.

Soleglad M., Sissom W.D. 2001. Phylogeny of the family Euscorpiidae Laurie, 1869 (Scorpiones): a major revision // Fet V., P.A. Selden (eds.). Scorpions 2001. In Memoriam Gary A. Polis. Burnham Beeches, Bucks: British Arachnological Society. P.25–111.

Vachon M. 1952. Études sur les Scorpions. Publications de l'Institut Pasteur d' Algérie. Algérie, Alger. 482 p.

Vachon M. 1974. Étude des caractères utilisés pour classer les familles et les genres de Scorpions (Arachnides). 1. La trichobothriotaxie en arachnologie. Sigles trichobothriaux et types de trichobothriotaxie chez les Scorpions // Bulletin du Muséum national d'Histoire naturelle, Paris, 3 sér. Vol.140. P.857–958.

Yin S.J., Zhang Y.F., Pan Z.H., Li S.B., Di Z.Y. 2015. *Scorpiops ingens* sp.n. and an updated key to the *Scorpiops* from China (Scorpiones, Euscorpiidae, Scorpiopinae) // Zookeys. Vol.495. P.53–61.

Zhu M.S., Qi J.X., Song D.X. 2004. A checklist of scorpions from China (Arachnida: Scorpiones) // Acta Arachnologica Sinica. Vol.13. P.111–118.

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